

UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

Broadwater Energy LLC)	Project Nos. PF05-4
Broadwater Pipeline LLC)	CP06-54-000
		CP06-55-000

Draft Environmental Impact Statement (DEIS) – Comments

The Department offers comments on the subject document that was issued by the Commission on November 17, 2006. The Commission should be aware that the paper copy of the released DEIS has pages omitted from Appendix D, the U. S. Coast Guard's Waterways Suitability Report (WSR). Specifically, pages 148 through 165 are missing. These pages are included on the CD version of the DEIS. The DEIS has been reviewed by all relevant disciplines within the Department, and the following comments are a coordinated response. The comments are organized by subject/resource with specific DEIS references provided, as appropriate.

PUBLIC TRUST LAND

On page 1-1 of the DEIS, the location of the project is described in the following statement: "All Project facilities would be in the Suffolk County, New York water of Long Island Sound. There are other instances in the DEIS where the location of the project is inferred as being entirely within New York waters, such as on pages 3-85 & 86. This information is not accurate.

The 950-acre permanent security zone that is a necessary and required feature of the project will extend into waters of the State of Connecticut and will exclude the public's use and enjoyment of approximately 40 acres of our public trust land.¹ At a minimum, this fact should be recognized and considered in the ongoing analysis; far better would be an acknowledgement that the States of New York and Connecticut, as trustees for the submerged lands and waters of Long Island Sound, should have a determinative role in deciding whether or not the FSRU and its ancillary security zone may be located on public trust property

The presence of the proposed security zone in Connecticut waters implicates not only our public trust responsibilities, but also our coastal management responsibilities under the federal Coastal Zone Management Act (CZMA) consistency process. I have written to the Commission on several occasions,² pointing out that this aspect of the Broadwater project requires submission

¹ The calculation of this acreage is based on the radius of the security zone contained in the Waterways Suitability Report and the coordinates for the YMS (Broadwater DWG No. 05032-063 SH1).

² Most notably, in letters dated February 28, 2006, June 30, 2006, and October 5, 2006.

of a Connecticut consistency determination by the applicant. While section 3.5.7.1 of the DEIS does discuss the need for Broadwater to obtain a consistency concurrence from New York's federally-approved coastal management program, it asserts that the Coast Guard's Letter of Recommendation (LOR) process, from which the security zone originated, is a separate authorization process for CZMA consistency purposes and that Connecticut missed the deadline for requesting consistency review.³ Given that the LOR is a required component of an LNG facility authorization under the Natural Gas Act and the Energy Policy Act of 2005 (EPAAct), and that EPAAct established a consolidated record and review process for all LNG authorizations under federal law, we do not understand how the LOR can be considered a separate authorization with a separate review framework from FERC's review of this application. Accordingly, we urge FERC to reconsider its position and to require that Broadwater obtain CZMA concurrence from Connecticut prior to final action on this application. Without the official review opportunity afforded by the CZMA consistency process, the Department's comments on the Broadwater application carry no more weight than any other public comments, so that we are forced to depend entirely on FERC's consideration of how and under what circumstances Connecticut's citizens may be excluded from forty acres of their public trust property. Under such conditions, as Governor Rell stated in her remarks delivered at the January 9, 2007 public hearing on the DEIS, "Forcing Connecticut to accept those types of security zones represents a taking of our property."

ALTERNATIVES

The DEIS's Alternatives Analysis in Section 4 is fundamentally flawed, if not disingenuous. The Broadwater project is evaluated against a wide range of individual alternatives, including renewable energy sources, different pipeline system alternatives, other proposed LNG terminals, and alternative terminal and pipeline locations. Each one of these alternatives is reviewed in isolation and rejected, either due to allegedly greater environmental impacts than Broadwater, or not providing enough additional (imported) gas supply, or both. However, at least five of the alternative pipeline and terminal projects rejected by the DEIS have already been approved by FERC, so that the environmental impacts of the alternative projects have, presumably, already been deemed acceptable. FERC should therefore assume, for purposes of the DEIS, that the impacts of Broadwater will be cumulative, not alternative, with regard to environmental impacts which are likely to be sustained anyway.

In particular, we are taken aback by the discussion of the Islander East natural gas pipeline, also located in Long Island Sound, at section 4.3.1.2. Since FERC has already approved this project, despite a Final EIS finding that the proposed route is not the least environmentally impacting, it is astounding to us that the DEIS rejects Islander East as having an unacceptable adverse impact compared to Broadwater, and also because it does not meet the region's demand for natural gas. If Broadwater is truly superior to Islander East environmentally and with regard to regional gas supplies, then what justification remains for constructing Islander East? In fact, Connecticut DEP fully endorses the DEIS analysis of Islander East, and based on the DEIS conclusion, respectfully suggests that FERC promptly revoke its approval of the

³ The DEIS measures this deadline from an August 16, 2005 public notice. However, it was not until the release of the WSR on September 21, 2006 that the Broadwater project was confirmed as extending into Connecticut waters by virtue of the security zone. Accordingly, the Commissioner's requests to FERC for consistency review were timely.

Islander East pipeline and engage in a comprehensive evaluation of all of the alternatives for meeting the region's demand for natural gas that acknowledges cumulative environmental impacts.

Moreover, by evaluating alternatives individually the DEIS did not consider the potential that several pipeline and/or LNG terminal projects could combine to provide as much or more natural gas to the Connecticut/New York region as Broadwater. For instance, a combination of a revised Millennium Phase II,⁴ the Leidy to Long Island project, and, for example, the Dominion Hub project, could provide an equivalent level of gas supply to the region without any impacts to Long Island Sound. If the importation of foreign LNG is a necessary goal, the gas imported through Broadwater to the region's pipeline system could be replaced by a combination of the Northeast Gateway and Neptune Terminal projects, both of which have been approved by Massachusetts Governor Romney.

The displacement of recreational and commercial uses of the project area is a significant impact of the project. Access to areas traditionally used by the public, as well as the quality of experience, would be diminished by the additional large-vessel traffic and associated security zone through the Race and eastern Long Island Sound. However, it is not possible to quantify such impacts at this time. Nonetheless, additional measures should be evaluated to avoid these impacts. For instance, locating the FSRU at a site outside of Long Island Sound, such as described in Alternative 4.4.2.1, would eliminate interference with these existing uses at the Race and eastern Long Island Sound and should be given greater consideration in the analysis of alternatives.

Finally, the DEIS in section 4.4.1.1 appears to give short shrift to the alternative of expanding the existing KeySpan or ConocoPhillips oil platforms. Of course these facilities have not been designed to accommodate LNG imports, but neither has the middle of Long Island Sound, nor has the Iroquois pipeline been designed to accommodate gas from Broadwater without significant modifications. Given the financial resources available to the applicant, and the regulatory authority enjoyed by FERC, particularly the power of eminent domain over private property, it is unwarranted for the DEIS not to conduct a complete analysis of co-locating LNG and petroleum terminals. The existing terminals offer navigational depths and tanker berthing capacity more than adequate to accommodate LNG tankers, and adding LNG offloading and storage facilities in the same location could take advantage of significant economies of scale in equipment construction, operation and maintenance, security, and tanker traffic management.

WILDLIFE - Birds, Marine Mammals and Sea Turtles

In our scoping comments, the Department raised the issue of the potential impact on migratory birds due to collision or strikes to the structure itself. The DEIS has addressed these concerns, albeit in a cursory and limited fashion. Although the potential impacts may be slight,

⁴ Despite the DEIS's finding that it was unlikely that the Millennium pipeline would be constructed in light of NYDOS's denial of coastal consistency, both the NYDOS decision and the Secretary of Commerce's decision on Millennium's CZMA appeal highlighted potential feasible alternative routes for a natural gas pipeline crossing of the Hudson River. Thus, if the applicant were to revise its proposal in light of applicable environmental constraints, this project would constitute a viable alternative to provide natural gas to the region.

no attention was given to literature on this issue and the overall section pertaining to effects on avian species is weak. The discussion of impacts is limited to pelagic species and diving ducks. The Department has documented numerous passerine species “dropping-in” on offshore islands during migration and has many anecdotal observations of passerines being observed from vessels in Long Island Sound (LIS) as they cross the Sound during spring and fall migrations. The assessment of lighting and related strike hazards does not include a discussion of strike hazards posed by aviation hazard warning lights. The color, wattage, and height of this type of lighting can greatly impact migrating species, especially during periods when visibility is poor.

Migrating bats are also likely to cross LIS and may be at risk for strike mortality. Even though their migration patterns are not well documented, the potential impact on bats deserves some attention in the DEIS. The species of bats that would most likely to be impacted are red, hoary, and silver-haired.

Some of the questions that we raised in our scoping comments regarding marine mammals have been addressed in the document. LNG vessels transiting Block Island and Rhode Island Sounds may adversely impact migrating North Atlantic Right Whales; therefore, it is important that Federal rules intended to reduce mortality due to ship strikes be strictly followed in non-exempt areas. Although discussed in an ancillary fashion within the fisheries sections of the DEIS, no direct discussion of the potential impacts to prey or food items for marine mammals resulting from project construction or operation is included. The availability of food has a direct impact on marine mammal and sea turtle use of the project area. Disturbances (e.g., pile driving) from construction should be minimized from November through May when seals are in the area and during summer when sea turtles may be present. Forming work groups to address whale and marine mammal mitigation was mentioned. Participation should include appropriate staff from Mystic Aquarium as they are Connecticut’s designee for stranding and injured marine mammals and have Sound-wide experience.

STATE OF CONNECTICUT ENDANGERED SPECIES ACT (CT ESA)

In 1984, the Department’s Marine Fisheries Division (MFD) began a long-term survey called the Long Island Sound Trawl Survey, hereafter referred to as the Survey, to monitor the abundance and distribution of finfish and crustaceans in Long Island Sound. During certain months, sites are selected at random from throughout the Sound for sampling.⁵ The Survey database was queried to determine if species listed under the CT ESA have been observed in sites encompassing the proposed FSRU and pipeline route.

The State of Connecticut, as well as the federal government, lists shortnose sturgeon (*Acipenser brevirostrum*) as Endangered. No shortnose sturgeon have been captured in the vicinity of the proposed FSRU or pipeline corridor.

The Atlantic sturgeon (*Acipenser oxyrinchus*) is listed by the State of Connecticut as Threatened. NOAA Fisheries considers Atlantic sturgeon to be a “species of concern” and the

⁵ A description of the Survey was provided to FERC staff during preparation of the DEIS. Additional detail is available from the Marine Fisheries Division, or the most current annual report at: <http://www.dep.state.ct.us/burnatr/fishing/marineinfo/marineinfo2.htm>.

species is also a candidate for listing under the federal Endangered Species Act. According to the DEIS, the State of New York categorizes Atlantic sturgeon as “protected.”

On page 3-78, the DEIS states: “Although these species [i.e. Atlantic sturgeon and shortnose sturgeon] are rarely found in Long Island Sound, they could theoretically be present as transients in the proposed Project area.”

The Survey has observed Atlantic sturgeon in the proposed FSRU location and pipeline corridor. Survey catches of Atlantic sturgeon in any given year are typically low, but when the time series is aggregated and examined spatially it is evident that sturgeon occur regularly in certain portions of the Sound. Even a low number of individuals observed at certain locations over a period of time can be suggestive of deliberate use of the area for purposes other than directed migration. Of the Survey sites that encompass the proposed FSRU and pipeline, only seven Atlantic sturgeon were captured along the entire pipeline route over the time series, but six of these individuals were in the vicinity of the FSRU. This area is at the southwest corner of a broader area used by sturgeon that extends northeast toward the Connecticut coastline, with the largest numbers regularly occurring near Faulkner Island. The Survey data indicates the southwest corner of this area could be avoided entirely if the FSRU location were moved a short distance to the south and west, perhaps on the order of 0.5 to 1.5 nautical miles (nm). It is recommended the DEIS consider this information in the assessment.

The rainbow smelt (*Osmerus mordax*) is listed by the State of Connecticut as Threatened (only anadromous populations). The Survey has only observed three rainbow smelt in the proposed pipeline corridor. All three were observed in 1993 in a site that encompasses a western section of the corridor (two were taken in the Survey, which uses a 51 mm codend, and another was observed in a study conducted during the summer months from 1991 to 1993 using a trawl net equipped with a 6.4 mm codend liner).

An analysis of potential impacts to roseate terns (*Sterna dougallii*), a federally and state endangered species, is noticeably missing from the DEIS even though the importance of this species was highlighted in our scoping comments. Major nesting colonies occur within LIS and adult birds travel through the Sound to forage. It is not uncommon for birds nesting in Connecticut waters to travel across the sound to forage around shoals closer to Long Island. At a minimum, a discussion of impacts to this species in terms of strike hazards, increased travel time on feeding flights due to flight path obstructions and potential alterations or changes to foraging areas should be included in the DEIS. If it takes adults longer to travel from Connecticut to Long Island to obtain food and then return with that food for their young, there could be a resulting drop in survival and fledging rates.

It remains uncertain as to the potential impacts a rupture in the pipeline, an LNG spill or leak during transfer operations or a similar type accident would pose to the wildlife and fisheries resources. The DEIS mentions the potential impacts of a carrier transport accident whereby thermal impacts could negatively affect portions of the Connecticut’s coast. Goshen Point is included within this potential impact area and is a nesting location for piping plovers (*Charadrius melodus*), which is a designated Federal and State threatened species. The DEIS

does not mention or discuss any possible preventative or mitigation measures, such as re-routing of LNG carriers, to avoid adversely impacting this species should a catastrophic event occur.

LONG ISLAND SOUND TRAWL SURVEY – Impacts

On page 3-94, the DEIS states: “The Coast Guard has stated that it *likely* [emphasis added] would allow the agency [i.e. CT DEP] to conduct sampling within the safety and security zone, assuming that proper procedures are followed to receive approval and that conditions related to safety and security zone at the time sampling is planned are acceptable.” The DEIS further states that “If sampling is not permitted in the safety and security zone, a small number of potential transect locations would be eliminated from the pool of potential transect sites. Under these circumstances, the agency would need to make minor statistical adjustments in its analysis before interpreting the longitudinal data set. This would result in a minor, long-term impact on the State of Connecticut’s survey program.”

The sites referred to in the DEIS are particularly important to the Survey. The foundation of the Survey is the stratified-random design, whereby sites are chosen at random from a list of sites assigned a stratum designated by depth interval and bottom type. The sites in the location of the FSRU and trawl zone⁶ are in the “deep mud” stratum (i.e. in depths greater than 90 ft with mud bottom, designated M4). Because the trawl zone is free of lobster pots, these sites are often used as substitutes when M4 sites in other locations can not be sampled because of a high density of lobster pots. As undesirable as it may be from a statistical/survey design perspective to relocate survey tows to the trawl zone, it has been a necessity for most of the time series and is far preferable to losing M4 samples altogether, which may happen if the FSRU is located at its proposed location. Ultimately, removal of these sites from the M4 stratum list could jeopardize the Department’s ability to adequately sample the M4 stratum.

Even if access is granted to sample in the security zone, it is unclear if the Survey could adequately sample the affected M4 sites. Based on the proposed FSRU coordinates and our experience using the trawl zone, the current location of the FSRU is directly in the trawl zone (43970 line LORAN C 9960-Y), and the trawl zone is currently only about 0.2 nautical mile wide (between 43970-Y to 43972-Y LORAN C, or two microseconds) rather than the 0.5 nautical mile width described in the DEIS.⁷ Plotting the positions of previous Survey tows shows that most of the tows conducted in the trawl zone go right through the proposed FSRU location. This means that to complete a Survey tow – which is approximately 1.7 nautical miles long – within the M4 sites, the Survey vessel would either have to tow the net directly toward the FSRU and be able to navigate close to and around it, or start setting the net very close to the FSRU and tow away from it (setting close to the FSRU would be necessary in order to be sure there was enough room to complete a tow before encountering lobster pot gear). Neither situation is practical in terms of implementing the Survey or for navigation safety reasons.

⁶ As discussed in the DEIS, the trawl zone is an area where lobster pot fishermen have agreed not to set lobster pots so that trawl fishermen can tow their nets.

⁷ The reduction in width is due to the decline of commercial trawling activity and subsequent encroachment by lobster pot fishermen. This is not unusual since the “trawl zone” is an informal agreement among fishermen and its location and width will vary over time.

We are aware that the FSRU has been sited considering a number of factors, such as a significant amount of commercial vessel traffic transiting the Sound to the south of the proposed site. We are also aware that NYDEC may be concerned about any additional encroachment into waters fished by lobster fishermen. However, given the importance of the Survey to Connecticut's management of fisheries and fish habitat, as well as the value of the Survey to the State of New York for similar purposes, we request that if the Broadwater project is to be approved that FERC evaluate moving the location of the FSRU to better accommodate the Survey.

If the FSRU were located as little as 0.3 nm further south and access to the safety and security zone were provided, the Survey could continue to relocate samples to the trawl zone as needed and tow directly north of the FSRU. The closest point of approach (CPA) would then be at least 0.2 nm even if the FSRU were swinging to the north on a changing tide, and the CPA would be 0.3 nm in a normal running (east-west) tide. Moving the FSRU to the west-southwest may avoid most of the commercial traffic and may help address the trawl survey issue. Also, this would avoid the area where Atlantic sturgeon have been observed, as described above.

The proposed pipeline, if improperly backfilled, may also interfere with the Survey.⁸ Plans call for backfilling the initial two miles of the pipeline with stone and leaving the mounded sediment in place. It is not clear in the DEIS why backfilling this length of pipeline with stone is necessary. It will be difficult, if not impossible, to tow a bottom trawl over these mounds of sediment, and the stone, if large enough in size, may also interfere with the net if it forms piles or is scattered on the seabed. This problem may be alleviated if the FSRU is moved as suggested above, but if it is not moved then the Department requests that FERC evaluate this issue and ensure that the pipeline corridor does not become an impediment to trawling.

A portion of the pipeline near the connection with the Iroquois pipeline, between approximately 73° 7' 28" and 73° 13' 29", is within sites that have been accessible to the Survey in most years. Sampling with the trawl is confined to particular locations within these sites, and the coordinates of Survey tows conducted in previous years overlaid on the pipeline route show the route runs parallel to and perhaps overlaps many of the tow paths. Given the uncertainty expressed in the DEIS about the ability of Broadwater to backfill the trench and the likelihood of sediment mounds remaining on either side of the trench, the Survey may not be able to sample these sites.

This concern is also relevant to the mid-section of the pipeline. Historically, there have been fewer tows made over this section of the proposed pipeline corridor due to either hard bottom (Stratford Shoal area) or a high density of lobster pots, but some of this area could become accessible some time in the future, and so it is important that the trench be backfilled properly and mounds or blocks of sediment do not remain on the seafloor.

These concerns are also relevant to commercial trawl and lobster pot fishing. FERC should evaluate this issue and ensure that the pipeline corridor not become an impediment to the Survey, as well as commercial trawling and lobster pot fishing.

⁸ The exact coordinates of the pipeline and Iroquois tie-in were not provided in the DEIS, thus our evaluation is based on our estimates of the location using the information available.

PIPELINE - Effects on habitat

The DEIS states that a subsea plow is the preferred machine for excavating the pipeline trench in order to minimize environmental impacts. Broadwater proposed leaving the trench open to backfill naturally, but the DEIS concludes: “active and successful restoration of the seafloor grade would minimize potential impacts to the seafloor.” The DEIS recommends a 20-mile section of the trench be backfilled with the excavated sediment to a minimum of three feet to meet “federal pipeline integrity protection requirements.”

This recommendation should be required if the project ultimately goes forward. Negative, long-term habitat impacts are most likely if a 6 ft to 9 ft trench is left open, and restoring preconstruction conditions would prevent other problems, such as interference with the Survey (see above), commercial trawling or lobster pot fishing.

However, the DEIS does not present a convincing case that a subsea plow is the best machine for excavating and backfilling a trench, or that it would have less negative impact on seafloor habitat and benthic animals than other machines, such as a jetting machine. The DEIS states that a subsea plow was used to excavate the trench for the recently installed Eastchester Expansion Pipeline in the western Sound and the contractors “largely were not successful at filling the trench.” In contrast, the DEIS states that contractors were able to backfill the HubLine trench in Boston Harbor, which was also excavated with a plow.

To address potential problems with backfilling, the DEIS recommends:

Prior to construction, Broadwater file plans with the Secretary, for review and written approval by the Director of OEP, describing methods to mechanically backfill the trench with the excavated spoil material in a manner that successfully results in the excavated material being returned to the trench immediately following installation. The plan incorporate [*sic*] interagency coordination to identify the conditions under which backfilling would be required, the appropriate methods for backfilling, and detailed post-construction monitoring criteria to assess success.

This recommendation has two weaknesses. First, the recommendation does not call for remediation if the post-construction monitoring finds significant problems. Second, and perhaps more important, even if remediation is required the DEIS provides little evidence that sediments excavated with a subsea plow can be successfully backfilled into the trench and original bottom contours restored. No details were provided about the Eastchester pipeline and HubLine installations and their relevance to the current project. The DEIS does not explain how a remotely operated subsea plow in depths of 55 ft to 95 ft, with relatively poor visibility conditions in Long Island Sound, could fully cover the trench and restore original contours on both sides of the trench. The experience with the Iroquois pipeline installation in shallow waters with a clamshell dredge demonstrated how difficult it can be – if not impossible – to restore original seabed contours after sediment has been excavated.

Therefore, it is recommended that past utility installations should be further evaluated to determine if a trench excavated with a subsea plow can be successfully backfilled, or whether another method of installation, such as jetting, would be more appropriate. The failures of the Eastchester project should be characterized, impacts quantified and relevance to the current project determined. Also, the HubLine installation in Boston Harbor should be examined to determine if the apparent success of that project is relevant to conditions in the Sound.

The details of the Iroquois pipeline installation could provide valuable lessons. Evidently, surveys of certain portions of the pipeline conducted by the National Marine Fisheries Service's Milford office in 1995 and Iroquois surveys in 1993 and 1999 found the pipeline to be adequately buried. Unfortunately, based on conversations with individuals knowledgeable about the surveys, it is unclear as to whether a jetting machine, subsea plow, or both techniques were used in offshore waters, and exactly where the techniques were employed.⁹ Matching up the surveyed transects with the type of installation used would be relevant to the Broadwater project. Also, the Survey has successfully towed a trawl net across the pipeline in a number of places, with one exception in New York waters where the net was snagged and lost on what seemed to be a mound of mud that may have been created by the Iroquois installation. This suggests that the pipeline is adequately buried in most places. This information could also be used to evaluate installation methods.

There have been other utilities installed in the Sound that could be used to determine the most environmentally appropriate installation method. The Cross Sound Cable, AT&T telecommunications cable and MCI telecommunications cable were all installed with jetting techniques. It appears that post-installation surveys of the Cross Sound Cable demonstrated there was minimal long-term impact to the environment – minimal sediment was dispersed from the disturbed area, and the bottom habitat recovered relatively quickly.¹⁰ There is also the Flag Atlantic telecommunications cable, but how that cable was installed and the current condition of the seabed over the cable is unknown.

Another area of concern is the approximately 4,000-foot section that would cross the hard bottom habitats of the Stratford Shoal area. According to the DEIS, it is unknown if the subsea plow can excavate and backfill the trench in this area. If a subsea plow is used, the same concerns described above are relevant. If an alternative method is needed, the Department supports the recommendation in the DEIS on this matter that Broadwater submit a contingency plan for review and approval. This plan would describe “mitigation measures that would be implemented to avoid and minimize potential impacts.” However, this issue should be resolved before Broadwater receives any approvals for the project.

One alternative to the subsea plow in this 4,000-foot section discussed in the DEIS is excavation with a clamshell dredge and backfilling with stone brought in from off-site. The

⁹ The surveys were described to Mark Johnson by Mike Ludwig, NMFS Milford (retired) and Anita Flanagan, Manager, Public Relations & Corporate Communications for Iroquois Pipeline Operating Company, in 2002. Accounts of the methods used to install the pipeline were not in accordance. These accounts also differed from what was reported in the June 3, 2003 report prepared by the Task Force on Long Island Sound, referred to in the DEIS as TFOLIS.

¹⁰ Surveys were conducted by Ocean Surveys, Inc. for Cross Sound Cable Company, LLC, and final reports were submitted to the CT DEP Office of Long Island Sound Programs in fulfillment of permit conditions.

concerns expressed above about the difficulty of backfilling are relevant here. Also, if the project were approved, it would be preferable to backfill with the native material or material resembling native material. The source of the backfill material could have significant implications for the resulting benthic impacts and conversion of habitat type from one substrate to another. In addition, if the trench material is removed to a hopper barge for disposal at an approved dredge disposal area, as mentioned on page 3-46, this disposal activity would most likely occur at a disposal site in Connecticut waters, possibly requiring sediment testing and additional regulatory approvals.

Another alternative mentioned in the DEIS is to lay the pipeline on the seabed and cover it with concrete mats. The consequences for benthic habitat and potential for this structure to act as a barrier to the migration of benthic animals should be evaluated. Partial burial would ensure the pipeline does not become such a barrier; however, the pipeline should not be above grade in places where the Survey or commercial fishing such as trawling and lobster pot fishing is conducted.

In our scoping comments we expressed concerns about potential contaminant levels along the pipeline route and do not feel that the DEIS has adequately addressed this issue. Several studies cited in the DEIS indicate mid to high levels of mercury and lead in LIS sediments, in the vicinity of the proposed pipeline. A sampling of 28 cores from along the proposed pipeline (~1/mile) indicated below threshold contaminant levels. This sampling intensity is not sufficient to come to the conclusion that there is no threat from contaminants to aquatic resources posed by the large-scale disturbance of seafloor sediments by the project.

The DEIS recommends conditions requiring mid-line buoys on dredge barge anchor cables as a means of avoiding impacts from anchor cable sweep from construction and support vessels. It offers no references to studies that document that mid-line buoys can completely eliminate cable sweep impacts.

PIPELINE - Temperature increases

The DEIS states that Broadwater estimated the temperature of the gas traveling through the pipe would range from a maximum of 130° F near the YMS to a low of 50° F at the Iroquois tie-in. If the pipeline is not buried, it could increase ambient seawater near the pipeline up to 20° F. At six feet from the pipeline, the estimated increase would be 1.5° F. If the pipeline is buried, Broadwater estimates there would be a “few degree” rise in temperature in the top six inches of sediment, and negligible increase at the seabed/water interface. The DEIS concludes: “Active backfilling would eliminate any potential thermal impacts to water resources associated with an open trench and exposed pipeline.”

As described earlier, it is uncertain that a trench excavated with a subsea plow can be adequately backfilled. In addition, if the trench was successfully backfilled, an increase of a few degrees in the top six inches of sediment could have an effect on lobsters that may burrow in the sediments. The best available information indicates that lobsters in the Sound rapidly become

stressed as temperatures rise above 20.5° C.¹¹ Bottom temperatures in the central Sound during the warmest months are typically near this threshold. For example, from 1994 to 2006 measurements of bottom temperature during the period August through October in one location north of the FSRU in approximately 75 ft depths ranged from 18.6° to 21.9° C.¹² Therefore, even a few degrees F increase, or 1.7° C, could be stressful to lobsters. Depending upon the variability in the estimate of temperature increase, the increases could be larger. Predicted isotherms over the pipeline route and representative cross-sections compared to bottom water temperatures in the warmest months would help evaluate the scope and duration of this potential impact. It is recommended that this potential impact be further evaluated.

The DEIS also concludes that: “As a result of the short length of this exposed pipe and the hydrodynamics of Long Island Sound, no significant impact to ambient water temperatures in Long Island Sound is expected to be associated with this thermal exchange.” It should be recognized that while it can be expected that the pipeline would not increase the ambient temperature of the Sound as a whole, there would be localized increases in temperature at locations where the pipeline is exposed at the YMS, the two utility crossings and at the 4,000 ft long section at Stratford Shoals if the pipeline is placed on the seabed (assuming that alternative is selected), which would change the benthic and fouling communities at these locations in ways that are not evaluated in the DEIS. This deficiency should be addressed.

On page 3-35, the DEIS states “At higher gas flows, the temperature of the natural gas would be approximately 100° F through the riser.” This is lower than the expected temperature at lower gas flows, which is expected to be from 120° F to 130° F. Does the temperature, in fact, increase at higher gas flows? If so, what would be the expected maximum temperature? How does this affect the thermal modeling?

LOBSTER ECOLOGY AND HABITAT

On page 3-41 of the DEIS, the following statement is made: “Juvenile lobsters in this shelter-restricted stage remain in their shelters 100 percent of the time, feeding on plankton and other benthic organisms found in or at the mouth of their shelters.” The Department’s reading of the literature and understanding of lobster ecology and behavior is that juvenile lobsters in this shelter-restricted stage remain *near* their shelters *most* of the time.

The following statements appear in the DEIS on page 3-41 and page 3-45, respectively. “The large majority of EBP lobsters are located in burrows of inshore waters less than about 33 feet (10 meters) deep, although some could be located at the greater depths found within the Project area (Lawton and Lavalli 1995, Palma et al. 1998).” “Juvenile or EBP lobsters primarily are located in shallow waters less than about 30 feet deep.”

As applied to the Sound, there is no information to substantiate these statements. Lawton and Lavalli (1995) appear to draw mostly on information from areas outside of the Sound, and

¹¹ The effects of temperature are summarized by Pearce and Balcom in the 2005 issue of the Journal of Shellfish Research, Vol. 24, No. 3. They cite several references, but see Powers et al. 2004 as the primary source for the 20.5 deg threshold.

¹² Source: CT DEP Ambient Water Quality Monitoring Program, Station H4.

lobster use of the Sound is different in many respects compared to other places referenced in the documents.¹³ Data collected by the Survey indicates that EBP lobsters are abundant in deeper habitats (see discussion below for the western end of the pipeline route), but data is lacking for nearshore habitats and so the relative value of habitats cannot be determined. In addition, Lawton and Lavalli 1995 does not define what constitutes “inshore.”

The following statements appear on page 3-45 of the DEIS: “Installing the pipeline during winter would avoid impacts to a portion of the adult lobster population because they would have migrated offshore.” “It is unlikely that a significant number of lobsters would occupy the spoil mounds in this short time frame, especially because construction would occur during winter when many lobsters have left Long Island Sound, and the lobsters that remain would tend to be inactive.”

The majority of lobsters remain in the Sound during winter, with a small portion of lobsters moving offshore. The MFD recently conducted a tagging study, and lobster movements were typically limited to areas within the Sound. Only some lobsters tagged east of the FSRU were recaptured outside of the Sound. Tagging studies conducted by the Millstone Environmental Laboratory in the vicinity of Millstone Power Station in the eastern Sound also demonstrated that the majority of eastern lobsters remain in the Sound, with some movement offshore. A somewhat more accurate statement is made on page 3-41: “Adult lobsters are found in the deeper waters of Long Island Sound throughout the year, although some may migrate to offshore waters in winter.” However, in the location of the FSRU and pipeline, it is likely that very few lobsters living in this area migrate offshore.

It is also debatable as to how inactive lobsters are in the winter. Lobsters are taken in commercial traps in the winter months, and winter bottom temperatures are similar to spring temperatures in the Gulf of Maine when lobsters are active there.

Page 3-65 states: “In general, impacts to lobsters primarily would occur only during active construction, although a negligible short-term impact to prey availability could occur along the pipeline corridor (which constitutes less than 0.1 percent of the available lobster habitat in Long Island Sound).”

How was it determined that the pipeline corridor is “less than 0.1 percent of the available lobster habitat in LIS?” There is very little quantitative data on how much habitat is used by lobsters. Also, the extent to which lobsters use each habitat type is important, and even for a given habitat type lobsters may use the habitat to a greater extent in one location compared to another. Sufficient quantitative data to calculate the amount of habitat used by lobsters and relative contributions to population size is lacking.

The MFD has been working with Professor Roman Zajac of the University of New Haven to use the Survey data to identify habitat associations for select species. Analysis conducted to date of lobsters ranging from 8 mm to 50 mm caught in the Survey reveal certain areas where this size class is abundant, and in some cases they appear to be associated with transitions between sediment types. One such area is along the proposed pipeline route between

¹³ This applies principally to Lawton and Lavalli as we did not have a copy of Palma et al. 1998.

approximately 73° 7' 28" and 73° 13' 29". It is recommended that the Commission evaluate altering the route in this section.

ICHTHYOPLANKTON

On page ES-10, the DEIS states "To reduce this potential impact, Broadwater has proposed to locate intake structures at mid-depth (about 40 feet below the surface, where the concentration of ichthyoplankton is expected to be relatively low), limit intake flow velocities to 0.5 feet per second to allow the more mobile larvae to avoid the intake flows, and use small-mesh screen (0.2-inch mesh) on the intakes to prevent many eggs and larvae from being taken in with the water. As a result, there would be a negligible long-term impact on ichthyoplankton and, therefore, on the general fisheries resources of the Sound."

The proposed intake screen may not reduce entrainment as much as anticipated. It is much different than a fine-mesh wedgewire screen that is considered best technology available to reduce power plant entrainment in the Clean Water Act 316(b) rule. A diagram showing the intake was not provided, but based on the text the screen will be recessed some distance within the intake pipe, and so ichthyoplankton cannot be swept away by currents, as is the case with modern power plant intakes. There is no mention of how the screen will be cleaned, which also is employed at power plants to disperse organisms and materials from the screen, and if the screen is not cleaned regularly then through-screen intake velocities will increase. The proposed 0.2 in. mesh equals 5.1 mm; fine mesh screens designed to exclude most eggs and larvae are typically less than 3 mm, and in the 316(b) Rule EPA developed anticipated costs of using fine-mesh screens based on a 1.75 mm screen. Broadwater should evaluate the exclusion efficiencies of various mesh sizes relative to the sizes of ichthyoplankton in the area and design the intake to minimize entrainment using the best technology available.

ANTIFOULING PAINT

According to the DEIS, the FSRU and YMS will be treated with copper-based antifouling paint, which will leach 27.8 pounds per day of toxic copper into the waters of Long Island Sound. While the DEIS states that this amount of copper loading from antifouling paint is expected to meet EPA ambient water quality criteria for acute and chronic exposures, it appears that much of this impact can be avoided altogether. As explained in Section 2.4.1, the FSRU and the YMS will not be recoated with antifouling paint once installed and will be periodically cleaned by divers who will remove accumulations of "slime and weeds" (fouling organisms?) up to once per year. Since Broadwater intends to undertake a regular cleaning program, it is unclear what operational benefit the initial painting of the underwater structures would provide. Accordingly, we suggest that the facility dispense with any antifouling paint and thereby obviate any potential for environmental effects of copper. In the alternative, the use of an alternative antifouling material that would not leach toxic materials should be evaluated. Since the security zone around the facility will create a de facto marine protected area--or at least a no-fishing zone for finfish and lobsters--Broadwater should be required to undertake this and other habitat enhancements as partial mitigation for its occupation of New York's and Connecticut's public trust submerged lands and waters.

The maintenance of the hull should be timed such that the removal of the fouling community coincides with natural die-off of such organisms, i.e., in the fall and winter, so as to maintain the more natural cycling of nutrients and minimize the potential for oxygen depletion due to decomposition of the fouling organisms discharged into the water column.

AIR QUALITY

The modeling results contained in the DEIS should be considered preliminary in nature and will likely change in future modeling of the proposed facility. Broadwater is required to receive a New York State facility permit and, if applicable, a State Title V permit from the New York Department of Environmental Conservation (NYSDEC) and a federal Prevention of Significant Deterioration (PSD) air permit from the U. S. Environmental Protection Agency (EPA). Broadwater and NYSDEC are currently finalizing a modeling protocol for the proposed project. Once a modeling protocol is finalized a permit application will be submitted to New York and modeling will commence. The Department will monitor this permit process and evaluate the modeling results when they are available.

It is our understanding that Broadwater has taken the position that LNG carrier emissions are not under their control and, therefore, should not be considered project emissions. This claim allows Broadwater to exclude a significant source of emissions from total project emissions. This has implications in Title V and PSD applicability determinations as well as New Source Review (NSR) Best Available Control Technology determinations and NSR dispersion modeling analyses. Broadwater claims it has no control over how foreign vessels are operated yet presents no argument as to why it cannot enter contracts only with vessels that are operated in a manner consistent with the requirements of the above-sited air permitting programs. It is up to the permitting authorities (NYSDEC and EPA Region II) to insist that vessels, while docked at the FSRU, be treated as part of the FSRU for NSR, PSD and Title V purposes, and held accountable to the requirements of those programs.

The DEIS acknowledges that certain emissions associated with the facility may need to be addressed under the General Conformity rule. The DEIS also acknowledges that the information necessary to make a Conformity determination does not currently exist. No data are presented in the DEIS except a recommendation that Broadwater supply the information necessary for FERC, EPA and NYSDEC to make a Conformity determination. Broadwater will be required to assess emissions during construction of the project and for continuing project-wide emissions of pollutants for which the project areas are designated as nonattainment (i.e. ozone precursors NO_x and VOC; and PM_{2.5}) and are not otherwise governed by stationary source NSR, PSD or Title V permits. That is, Broadwater must evaluate project related emissions of NO_x, VOC, and PM_{2.5} from all vessels, motor vehicles, and construction equipment not permitted, and propose how these emissions, if above applicability thresholds, will be offset or otherwise accounted for in state attainment demonstrations.

An analysis of an accidental or intentional LNG spill associated with the FSRU or carrier vessels was addressed in the DEIS and in the Coast Guard's WSR. The Coast Guard report attempts to define three hazard zones associated with the FSRU and the LNG tanker travel routes. The three hazard zones modeled for the Broadwater facility and its associated tanker

traffic are defined in the Table 1-2 below. Zones 1 and 2 are heat exposure limits from a potential natural gas fire and Zone 3 is identified as the outer limit where LNG vapors can ignite. Table 1-3, also taken from the WSR, summarizes the results of the Coast Guard's analysis.

Table 1-2: Definition of Hazard Zone Boundaries

Zone	Criteria (10 minute exposure time)	Basis
Zone 1	37.5 kW/m ² *	High potential for major injuries or significant damage to structures
Zone 2	5 kW/m ²	Potential for injuries and some property damage
Zone 3	Lower flammability limit (5%)	Outer limit where LNG vapor can be ignited

Source: Sandia Report, p. 38

Note: *Kilowatts per square meter

Table 1-3: Hazard Zones Broadwater Energy Project

	Zone 1 (37.5 kW/m ²)		Zone 2 (5 kW/m ²)		Zone 3 (Lower Flammability Limit)	
Sandia	500 m	546 yds	1600 m	1750 yds	3500 m	2.2 miles
Broadwater FSRU		750 yds		2100 yds		4.7 miles
250,000 m ³ LNG Carrier		750 yds		2050 yds		4.3 miles

These results are based on modeling performed by Sandia National Laboratories. This work is documented in a report entitled "Guidance of Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill over Water" and dated December 2004. Table 1-3 is summarized in graphical form in Figure 1-1 of the WSR. The outer blue line in this figure represents the predicted extent of an ignitable LNG vapor plume. The flammable vapor dispersion modeling was based on conservative atmospheric conditions (low wind speed and a stable boundary layer). Spill conditions used represent a 5m² breach with three tanks breached at once. This is assumed as a worst-case un-ignited spill. There seems to be no way of knowing for certain if a 5m² breach is worst-case. The Scandia report considered larger breaches, up to 25m², however it was assumed that breaches greater than 5 m² would be caused by such a force, likely intentional, that a source of ignition would be present and vapor dispersion would be limited. These conservative assumptions seem reasonable.

LNG is comprised mainly of methane with small amounts of propane and ethane. Typical LNG composition is 90% methane, 7% propane and 3% ethane. These gases have low toxicity to humans and can be considered simple asphyxiants. Very little is said about the potential for a LNG vapor plume from the FSRU or an LNG tanker to inflict physiological effects on the public. For instance, no calculations have been made that predict percent oxygen levels at varying distances downwind from a LNG spill. The American National Standards Institute (ANSI) provides data relating to response of humans exposed to air deficient in oxygen. ANSI has determined that impaired thinking and attention, and reduced coordination are evident in humans at sea level oxygen levels of 16% (normal = 20.9%). It is obvious that a 16% oxygen

level would not be achieved at LNG vapor concentrations below the Lower Flammability Limit. However, it is not clear what concentration of LNG vapor would be required to reach a 16% oxygen level and at what distance from the source this may occur. It is assumed that this distance would be within Zone 3 (Table 1-3) 4.7 – 4.3 miles from an FSRU or LNG carrier spill or. The DEIS should further evaluate this public health risk.

BOATING / NAVIGATION

The DEIS states that Project-related tugs would escort each LNG carrier and that USCG vessels would also provide escorts, but it is not clear how recreational boaters would be notified of a LNG carrier transit. Also, if tugboats are used as the escort vessels and since they typically cannot attain speeds of 12 – 15 knots, it appears likely that the transit through the Race would take longer than the estimated 15 minutes, thereby increasing the delay to boaters. This issue should be further evaluated and we concur with the USCG recommendation in Section 6.3.1 of the WSR that Broadwater Energy conduct model testing to establish the performance standards for escort tugboats. Since these results might significantly change key assumptions in the WSR, this modeling should be performed at this time and as part of the DEIS.

The Department is concerned that the proposed placement and spacing of buoys to mark the safety/security zone for the FSRU will be insufficient to make it clear to boaters that there is a no entry zone around the facility. The anticipated success and basis of the proposed security zone marking should be further explained in the DEIS. It would be helpful to provide examples of how other similar fixed security zones have been marked.

The Department concurs with the USCG's recommendation that, should the project be approved, the Commission's authorization for the project require that Broadwater provide documentation to FERC and the USCG that the required number of assist tugs for the FSRU will be available at all times while it is in operation as well as the tugs necessary to escort LNG carriers through the Race and eastern Block Island Sound. Also, it is critical to have an Emergency Response Plan developed in consultation with the USCG and state and local agencies and approved by FERC, before construction is allowed to begin, as discussed by the WSR, Section 6.2. The expected 'use of force' procedures for each law enforcement entity that would respond to a security breach will be an important element of this Plan. The DEIS should conceptually address this security response issue, which the Department raised in our scoping comments.

IMPAIRMENTS TO FISHERIES USES

After analyzing the Project's potential impacts to recreational fishing in the Race and eastern Long Island Sound, the DEIS states on page 3-93: "As a result, the impact of LNG carriers on recreational boating and fishing is considered minor and temporary." The DEIS does not appear to address impacts to commercial lobster fishing in these areas. The potential impact on this activity should be evaluated.

If the project is approved for the Sound, additional measures should be evaluated to minimize impacts to fishing activities. For example, transits of LNG carriers should be

scheduled during periods of lower fishing activity. This recommendation was made by the Harbor Safety Working Group (formed by the USCG Captain of the Port Long Island Sound). The consensus of the Harbor Safety Working Group was that “LNG carrier arrivals and departures should be scheduled to minimize conflicts with other waterway users, with particular emphasis on avoiding transiting the Race during times when use by commercial and recreation fishermen is highest and avoiding interfering with regattas.” The USCG evaluated this recommendation in its safety assessment (WSR, Section 4, Safety Assessment), and determined that if the recommendation was implemented it would result in a “moderate reduction in risk.” However, it appears that neither the Coast Guard nor the DEIS evaluated this measure specifically for the purpose of reducing impacts to commercial and recreational fishing. It is recommended that this matter be evaluated as a mitigation measure to reduce fishing and other use conflicts.

The exclusion of commercial fishing in both the FSRU security zone and commercial trawl zone has not been fully evaluated. Broadwater proposes to financially compensate the affected fishermen, and FERC has recommends that the compensation agreements be filed with the Commission before the project is initiated. However, the exclusion of commercial fishing from these waters will prohibit other fishermen who might want to fish these areas in the future. This poses significant “public trust” concerns regarding the use of the affected waters by current and future citizens of the region and should be considered in the evaluation of this impact.

The concerns expressed in the preceding section regarding potential interference with the Survey as a result of alternations and modifications of the seafloor are also relevant to commercial trawling and lobster pot fishing. FERC should evaluate this potential impact of the pipeline on these existing uses and ensure that it does not become an impediment to these activities.

VISUAL IMPACT ANALYSIS

The DEIS discussion of Broadwater’s visual impact in section 3.5.6 overlooks important components of the facility’s impact on the scenic resources of Long Island Sound and the sense of place that the Sound embodies. As a result, the DEIS significantly understates a major factor underlying the widespread and often vociferous public opposition to this project. By virtue of its size, mass, scale, lighting, and location, the Broadwater facility will constitute a permanent, unique and unprecedented visual intrusion which will serve as a constant reminder that 950 acres of formerly open public waters and submerged lands have been occupied for a private industrial use. Quite literally, nothing like Broadwater has ever been seen before.

In Sections 3.5.6.3 and 3.5.6.4, the DEIS attempts to minimize the visual profile of the Broadwater facility by comparing it to existing shorefront development in Long Island, and to existing vessel traffic, respectively. With regard to existing development, the DEIS characterizes the view of Long Island Sound as a “mixture of industrialized areas and ports, city skylines, residential areas, and undeveloped open space” and containing “recreational and commercial marine traffic; open water; and commercial/industrial structures, including two offshore petroleum transfer platforms.” While Broadwater would not be the first energy or industrial facility on the Sound, it would be located completely outside the context of other shoreline

development and thus would present an entirely different visual profile from its mid-Sound location. Especially for viewers on boats, but also for viewers on land, this unexpected visual intrusion could prove disturbing and disorienting, yet mid-distance views at the 0.6875 mile security perimeter were not considered in the DEIS.

In its discussion of the visual impacts of Broadwater operations in 3.5.6.4, the DEIS suggests that the FSRU will look just like any other large commercial vessel transiting the Sound, except that for its “lack of substantial movement.” But as a semi-fixed structure in the middle of Long Island Sound, Broadwater will permanently alter the mid-Sound viewshed, particularly when illuminated at night. It is important to note that the visual impact of the facility extends beyond the FSRU/YMS itself. The FSRU will be more than just a paper clip-sized smudge on the horizon, but the center of a hub of activity including large LNG tankers coming and going approximately every other day, support and patrol vessels operating within and around the security zone, and occasional helicopter traffic. In addition, there may be some unspecified buoys or markers delineating the security zone.

The assemblage of Broadwater activity will be particularly prominent at night, where the DEIS estimates that nighttime aid to navigation lights, aviation obstruction lights, and operational lights would be visible approximately 292 nights of the year, or 80% of the time, in addition to the lights on LNG carriers at berth or transiting the Sound and on support/security vessels, and potentially lighted buoys around the security zone. Unlike onshore buildings or moving ship traffic, the nighttime view of Broadwater will appear to be an oscillating constellation of lights orbiting around the FSRU and mooring tower, not associated with or resembling any other visual objects in the middle of Long Island Sound and over nine miles away from any built-up area on shore.

The DEIS seems to recognize that the night view of Broadwater may well present the strongest negative visual impact, but it only recommends that Broadwater file a final lighting plan after the project is approved but before placing the FSRU in operation. We believe it is highly irresponsible of FERC to approve the project first and review the lighting plan later, without subjecting the plan to a complete visual impact analysis, including public notice and comment. Indeed, without knowing what Broadwater will look like at night, the DEIS’s determination of the project’s visual impact as “moderate” is merely speculative. At this point, FERC should suspend review of the project pending submission of a thorough, complete visual simulation of the proposed lighting plan, considering views from several vantage points, both elevated and at sea level, on both shores and from the water.

The DEIS neglects to consider much of the information submitted in *Broadwater Resource Report No. 8: Land Use, Recreation, and Aesthetics: Appendix D*, including the extensive list of public access sites in New York and Connecticut visually impacted by the FSRU. Instead, the DEIS does make some attempts to evaluate the adverse visual effects of Broadwater, first by referring to Broadwater’s visual resources assessment prepared according to the NYSDEC Program Policy entitled *Assessment and Mitigating Visual Impacts*. This document notes in §IV that “in the review of an application for a permit, staff must evaluate the potential for adverse aesthetic impacts to...sensitive places of statewide concern.” These “sensitive places” as listed in §V.A include state parks, urban cultural parks, and rivers designated as national or state wild,

scenic, or recreational. The NYSDEC Policy continues in §V.C that “[s]ignificant aesthetic impacts are those that may cause a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place.” The DEIS fails to adequately address the significance of impacts to views from the entire spectrum of public access points, state parks, or other views of statewide concern in both New York and Connecticut, since its sole mention of a place of statewide concern is Wildwood State Park in Long Island. However, given the status of Long Island Sound as an estuary of national significance, and the prevalence of recreational use in and around the Sound, virtually all of the Sound should be considered a “sensitive place of statewide concern,” a scenic resource and a potential public access viewpoint. Moreover, as discussed above and below, Broadwater will fundamentally alter the visual character and quality of the mid-Sound viewshed by introducing a unique, significant and incongruous element. Accordingly, the project appears to be inconsistent with the NYSDEC visual impact policy.

In addition, while the DEIS acknowledges that the Broadwater facility will be visible from many points in Connecticut, it does not evaluate or even mention compliance with Connecticut’s visual impact policies. Connecticut’s Coastal Management Act defines “degrading visual quality through significant alterations of the natural features of vistas and view points”¹⁴ as an adverse impact on coastal resources, and mandates that such adverse impacts be avoided, minimized or mitigated to acceptable levels. From Connecticut’s perspective, Broadwater certainly appears to create an adverse impact to coastal resources, since it significantly alters the natural features of the mid-Sound vista by introducing a sizable industrial facility. FERC should therefore revise the DEIS to include a complete discussion of impacts to visual quality, specifically in Connecticut.

Visual impacts have more far-reaching consequences in Connecticut than in New York, as evidenced by viewshed maps in *Broadwater Energy LLC's CD #3 Containing its RR-8 and Appendix A - Oversized Figures Small. Broadwater Resource Report No. 8: Land Use, Recreation, and Aesthetics: Appendix D* notes in § 2.3 that Connecticut’s coastal “topography typically ranges from 30 to 150 feet above sea level in a series of shallow hills and valleys” making it “markedly different from the wider and more expansive panoramic views typical of the Long Island shore.” Such elevated views, e.g. Sleeping Giant and West Rock Ridge State Parks and New Haven’s municipal East Rock Park, and those on points, e.g. Parker Memorial Park near Branford Point, will experience unacceptable co-domination of the open waterscape. The above referenced photo simulations demonstrate the severity of these visual impacts where the structure and mass of the FSRU significantly disrupt planar forms of the Sound and sky. The FSRU breaks the line of the horizon by introducing an incompatible silhouette as a visual focal point. Though contrast diminishes with distance, from these public access points of state and municipal significance the contrast remains severe.

The DEIS also fails to consider historic policy guidance on the visual impacts of siting large industrial facilities in Long Island Sound. In 1971, the New England River Basins Commission’s *Long Island Sound Study Shoreline Appearance and Design: A Planning Handbook* established *Guidelines for Large-Scale Facilities*, stating (at p. 109) that “facility development should never be placed within, and ideally should be placed in locations as remote

¹⁴ CGS §22a-93(15)(F)

as possible from... areas of particular scenic, recreational or other social importance.”¹⁵ Since Long Island Sound is entirely an area of particular scenic, recreational, and social importance, the 1971 guidance brings into question whether a plant should be sited in Long Island Sound at all. Moreover, while the DEIS suggests measures to mitigate visual impact such as reducing color contrast and confining construction activities to the winter months, given the mid-Sound location of Broadwater, outside the visual context of other development, and the likely prominence of lighting on and around the FSRU, it is doubtful whether mitigation measures such as camouflage painting would have much effect.

In summary, as it revises the DEIS discussion of visual impact we would urge FERC to appreciate that there is more going on here than mere NIMBYism. It is probably true that the public has reacted more strongly to Broadwater because Broadwater can be seen, in isolation and from all sides, in contrast to oil terminals, underwater cables and pipelines and other existing energy infrastructure. However, the visual impact of Broadwater goes beyond a personal annoyance for those who happen to see it—the facility would constitute an inescapable reminder of the partial privatization of a pre-eminent public resource. Degrading the visual quality of Long Island Sound undermines an essential part of the identity and sense of place now enjoyed by millions of citizens of two states. If Broadwater is built, part of our heritage will be irretrievably lost.

ADDITIONAL QUESTIONS AND INFORMATION REQUESTS

- The pipeline and Iroquois tie-in coordinates should be provided.
- The coordinates of the 4,000 ft section of the pipeline corridor in the vicinity of Stratford Shoal, where an alternative installation method may be needed, should be provided.
- Will the pipeline, with associated concrete mats, be above the seabed at the utility line crossings? What length of pipeline will be exposed?

¹⁵ This document, in specifically discussing offshore nuclear power plants--the closest approximation at the time to an offshore LNG terminal--recommends the following guidelines:

1. Site offshore power plants in waters which are not within view of major viewing points or opposite scenic, recreational or residential use areas.
2. Minimize the vertical dimensions as much as possible to reduce visual impact. Add architectural baffles.
3. Select and/or treat the exterior material of the buildings to promote a blend between the water, the sky, and the power plant.
4. Design the plant as compactly as possible and strive for smooth silhouettes to reduce prominence.
5. Construct the breakwater with materials which are congruous with the natural rocks of the area in order to give the illusion of a natural shoal.
6. Setback inland facilities at terminus of underwater lines to minimize impact on shoreline.
7. Screen the onshore parking and office facilities with plantings; employ architectural styles which are congruous with the existing coastal architecture of the area.
8. Provide harbor of refuge, if needed in area.

- Will the tap at the Iroquois pipeline be buried?
- Will the post-construction 30 ft pipeline ROW described on Page 2-22 exclude all users of the area?
- If a subsea plow is used, how many passes along the length of the corridor will be required to complete the entire project (excavating, laying pipe and backfilling)? What is the anticipated time needed to complete the pipeline installation? This information should be used to characterize when and for how long fishing operations would be disrupted in the construction corridor.
- The residual chlorine from FSRU discharges is “not expected to affect water quality.” Additional detail as to why this is the case should be provided.

CONCLUSION

Although the DEIS concludes that “approval of the proposed Project with appropriate mitigating measures as recommended, would have limited adverse environmental impacts,” this conclusion is premature given the number and significance of the issues raised in our comments. The Department is available to discuss and clarify these comments and if this would be helpful, please contact Brian J. Emerick of my staff at 860.424.4109. Thank you.

Yours truly,

Date: January 23, 2007

/s/Gina McCarthy

Gina McCarthy
Commissioner

cc: James Martin, FERC
DEP Dist.